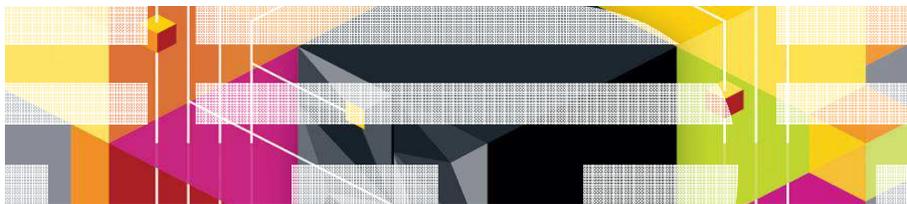




# Aktuelles zu IBM zEnterprise System und rund um



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43. Course 2013 in Erfurt

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Aktuelles zu

- IBM zEnterprise System (System z)

- z/VM



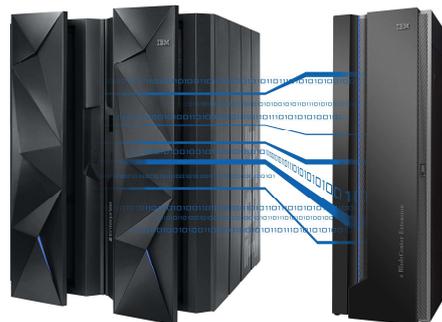
- z/VSE



z/VSE V5.1



zEC12



IBM zEnterprise EC12 (zEC12)

IBM zEnterprise BladeCenter Extension (zBX), Modell 3

Weltweit in 2012

- 71 Neukunden auf System z
- 66% Wachstum bei der Prozessorleistung
- 36% der System z Kunden haben IFL's installiert

Kosten sparen durch Konsolidierung auf Linux on System z (z.B. Oracle-Anwendungen)

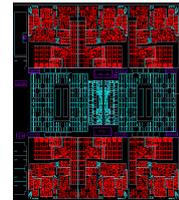
## zEnterprise EC12



<sup>1</sup> Basierend auf einer IBM internen Studie.

### zEC12 5 Modelle: H20, H43, H66, H89, HA1 Verfügbar seit Sept. 2012

- Bis zu 101 konfigurierbare Prozessoren
  - CP, IFL, zLP, zAAP, ICFs und optional SAPs
  - 4 - 16 Standard SAPs pro Modell
- Kapazitäten: (1- 4 Prozessor-Books)
  - 30 - 9194 MSUs<sup>\*)</sup>
  - granulare Abstufung
- Prozessor-Spitzen-Technologie:
  - 5.5 GHz 6-core Prozessor Chip
  - Verbessertes Cache-Design
- RAIM Memory Design
  - Bis zu 768 GB pro Book
  - Bis zu 3TB pro System
- OSA-Express 4S 1000BASE-T
- "über Kopf"-Strom und I/O Verkabelung möglich
- Fokus auf Energieeffizienz
- Bewährte Sicherheit und Verfügbarkeit



<sup>\*)</sup> Measurement Software Unit

## zEnterprise EC12 Functions and Features



Five hardware models
Six core 32nm PU chip
Up to 101 processors configurable as CPs, zAAPs, zLIPs, IFLs, ICFs, or optional SAPs
Increased capacity processor (1.25 x z196)
Up to 20 subcapacity CPs at capacity settings 4, 5, or 6
z/Architecture Enhancements including 2 GB Pages, Transactional Execution and Runtime Instrumentation
2nd Generation out-of order design
Enhanced processor cache design
Dedicated data compression and crypto coprocessor on each PU
Up to 3 TB of Redundant Array of Independent Memory (RAIM)
Flask Express and pagable large page support
Crypto Express4S and Cryptographic enhancements
New Channel path selection algorithms

### zEC12 Machine Type 2827

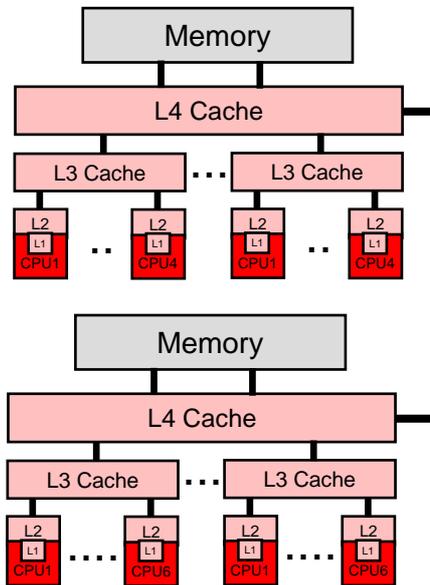


OSA-Express 4S 1000BASE-T
CFCC Level 18
IBM zAware
On Demand enhancements
Non-Raised floor option for Air Cooled System only with overhead I/O and power cabling options
Raised floor option for Air and Water Cooled System with overhead I/O and power cabling options
New 'radiator' design for Air Cooled System
Optional water cooling with Exhaust Air Heat Exchanger & air backup
Cycle Steering for Power Save and back-up for radiator and water cooled systems
Optional High Voltage DC power
Static Power Save Mode
Optional overhead Power and I/O cabling
NTP Broadband Authentication
zBX Model 003 and Unified Resource Manager

## zEC12 - z196 CPU/Cache- Vergleich



- z196
  - CPU
    - 5.2 GHz
    - Out-Of-Order execution
  - Caches
    - L1 private 64k I, 128k D
    - L2 private 1.5 MB
    - L3 shared 24 MB / chip
    - L4 shared 192 MB / book
- zEC12
  - CPU
    - 5.5 GHz
    - Enhanced Out-Of-Order
  - Caches
    - L1 private 64k I, 96k D
    - L2 private 1 MB I + 1 MB D**
    - L3 shared 48 MB / chip**
    - L4 shared 384 MB / book**

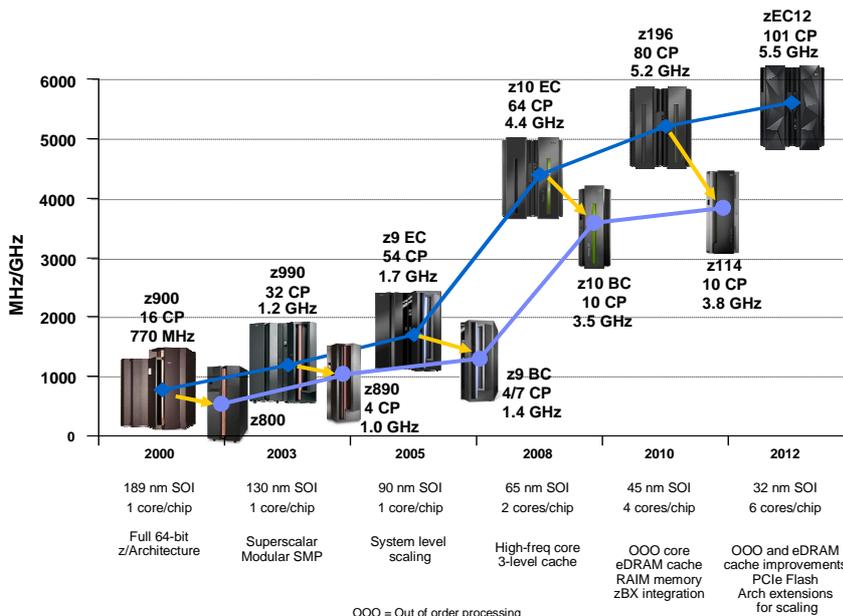


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## IT Trend: Scaling Down



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Seit **30.06.2012** IBM z10 BC / EC wird von IBM nicht mehr ausgeliefert!

(Ankündigung vom 12.07.2011: ENUS911-072.PDF)

d.h.

- Physische HW-Erweiterungen sind nicht mehr bestellbar

ABER möglich sind noch

- µCode-Änderungen bis **30.06.2013 (1 Jahr länger)**
  - installierter Hauptspeicher aktivieren
  - Prozessoren zuschalten (CP, IFL,...)
  - Capacity on Demand (CoD)-Features: CBU, OoCoD  
Alle Records, die noch nicht geladen wurden, werden am 1.7.2013 gelöscht.



### Nutzen Sie noch ESCON-Kanäle?

- ESCON wird ab IBM zEnterprise EC12 **NICHT** mehr unterstützt !

(ESCON Statement of Direction - February 15, 2011:

IBM plans not to offer ESCON channels as an orderable feature on high-end System z servers which follow the z196 (machine type 2817). In addition, ESCON channels cannot be carried forward on an upgrade to such a follow-on server...

System z customers should continue migrating from ESCON to FICON.)



- Aber noch mit IBM zEnterprise z114



## IBM System z Business Class Comparison (1 von 2)



	z9 BC R07	z9 BC S07	z10 BC E10	z114 M05	z114 M10
Uniprocessor Performance	470 MIPS		673 MIPS	782 MIPS	
z/OS Capacity	26-172 MIPS	193-1748 MIPS	26-2760 MIPS	26 - 3139 MIPS	
Total System Memory	64 GB		256 GB	128 GB	256 GB
Configurable Engines	7	7	10	5	10
Dedicated Spares	0	0	0	0	2
Configurable CPs	1-3	0-4	0-5	0-5	
LPARS/LCSSL	15/1	30/2	30/2	30/2	
HiperSockets	16		16	32	
I/O Cages/Drawers	1	1	Up to 4	Up to 3 <sup>(1)</sup>	Up to 3 <sup>(1)</sup>
I/O slots per Cage/Drawers	16	28	8	8/32 <sup>(2)</sup>	
FICON® Channels	64	112	128	128 <sup>(3)</sup>	
OSA Ports (10GbE/1GbE)	16/32	24/48	48/96	48/96	
<b>ESCON® Channels</b>	<b>240</b>	<b>420</b>	<b>480</b>	<b>240<sup>(4)</sup></b>	
STI (z9), IFB (z10) Bandwidth	2.7 GB/sec		6.0 GB/sec	6.0 GB/sec	
PCIe (z114 BC) Bandwidth				8.0 GB/sec	
ICB-4/ISC-3/PSIFB	16/48/0		12/48/12	0 <sup>(5)</sup> /48/8 - 16 <sup>(6)</sup> 0 <sup>(5)</sup> /48/16 - 32 <sup>(7)</sup>	
zIIP/zAAP Maximum Qty	3	3	5	2	5
IFL Maximum Qty	6	7	10	5	10
Capacity Settings	20	53	130	130	130
Upgradeable	Upgrade to z10 and z114		Upgrade to z114	Upgrade From M10 to z196 (M15, Air cooled only)	

See next chart for foot notes

## Foot notes (2 of 2)



- (1) Up to 3 channel drawers standard, a combination of I/O drawers and PCIe I/O drawers as defined. Up to 4 I/O drawers via RPQ

M05		M10	
I/O Drawer	PCIe I/O Drawer	I/O Drawer	PCIe I/O Drawer
0	0	0	0
0	1	0	1
0	2	0	2
1	0	1	0
1	1	1	1
		1	2
2	0	2	0
2	1	2	1
3	0	3	0
4	0		

3<sup>rd</sup> and 4<sup>th</sup> I/O drawers are offered through via an RPQ

- (2) 8 card slots per I/O drawer, 32 per PCIe I/O drawer  
 (3) FICON count is based on 2 PCIe I/O drawers or 4 I/O drawers  
 (4) Limit of 240 ESCON channels is consistent with Statement of Direction  
 (5) Limit of 0 ICB-4 links is consistent with Statements of Direction  
 (6) 8 ports of 12x, 16 ports of 1x PSIFB links available on model M05 based on 4 HCA capabilities  
 (7) 16 ports of 12x, 32 ports 1x PSIFB links available on model M10 based on 8 HCA capabilities

## z114: Flexibilität mit Wachstumsoption



	CP	IFL	zIIP	zAAP	ICF	Add'l SAP	Std SAP	Spare
M05	0-5	0-5	0-2	0-2	0-5	0-2	2	0
M10	0-5	0-10	0-5	0-5	0-10	0-2	2	2

Größer ↑

Kleiner ↓

Z01	Z02	Z03	Z04	Z05
Y01	Y02	Y03	Y04	Y05
X01	X02	X03	X04	X05
W01	W02	W03	W04	W05
V01	V02	V03	V04	V05
U01	U02	U03	U04	U05
T01	T02	T03	T04	T05
S01	S02	S03	S04	S05
R01	R02	R03	R04	R05
Q01	Q02	Q03	Q04	Q05
P01	P02	P03	P04	P05
O01	O02	O03	O04	O05
N01	N02	N03	N04	N05
M01	M02	M03	M04	M05
L01	L02	L03	L04	L05
K01	K02	K03	K04	K05
J01	J02	J03	J04	J05
I01	I02	I03	I04	I05
H01	H02	H03	H04	H05
G01	G02	G03	G04	G05
F01	F02	F03	F04	F05
E01	E02	E03	E04	E05
D01	D02	D03	D04	D05
C01	C02	C03	C04	C05
B01	B02	B03	B04	B05
A01	A02	A03	A04	A05
1-way	2-way	3-way	4-way	5-way

- **Komplette Kapazitätsmatrix (gleich für beide Modelle).**
- **Granularitätslevel an die z10 BC angelehnt um Aufrüstungen und schrittweises Wachstum zu ermöglichen**
- **Höhere Verfügbarkeit durch echte Spare-Prozessoren und 2-Einschub Technologie**
- **Um- und Aufrüstungen, CBU und On/Off CoD unterbrechungsfrei innerhalb der Modellgrenzen**
- **Linux only und ICF only Server möglich.**

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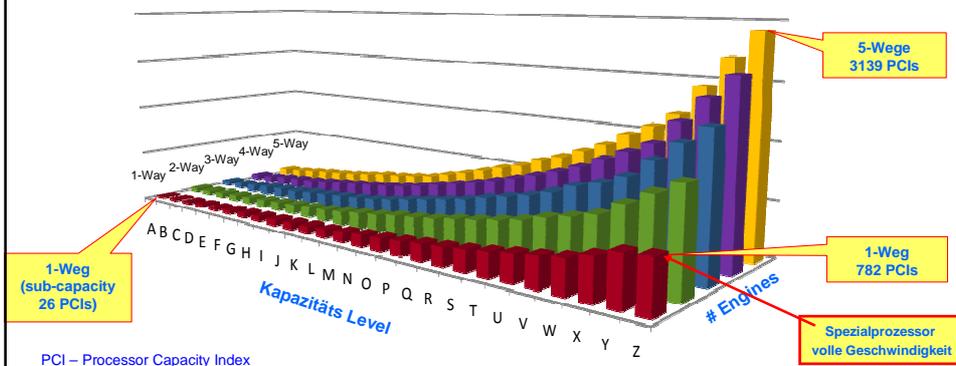
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## z114 SubCapacity Prozessor Abstufungen



- **Die z114 hat 26 CP-Kapazitätslevel (26 x 5 = 130)**
  - Bis zu 5 CPs
- **IFL läuft mit voller Geschwindigkeit (3.8 Ghz)**
  - **Software: Processor Value Units für IFL = 100**

Anzahl der z114 CPs	Base Ratio	Ratio z10 BC zu z114
1 CP	z10 BC Z01	1.18
2 CPs	z10 BC Z02	1.16
3 CPs	z10 BC Z03	1.14
4 CPs	z10 BC Z04	1.13
5 CPs	z10 BC Z05	1.12



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- Performance auf IBM zEnterprise Systemen ist extrem gut
- Immer mehr Kunden konsolidieren verteilte Workloads auf Linux on System z
  - Bis zu 100% Auslastung der z-Prozessoren ist kein Problem
  - Ausfallsicherheit und flexible Ressourcen-Verwaltung
  - Weniger Verkabelung



Kosteneinsparung ist möglich:



- Betrachten Sie **nicht nur** die Anschaffungskosten der Hardware
- Beachten Sie u.a. auch die **Core-basierende Lizenzkosten** der Anwendung, basierend auf PVUs (Processor Value Units)
- 1 Singel Core = 1 IFL = 100 PVUs

[http://www-01.ibm.com/software/lotus/passportadvantage/pvu\\_licensing\\_for\\_customers.html](http://www-01.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html)

- Kostenlose TCO-Studie wird von IBM angeboten

Aktuelles zu

- IBM zEnterprise System (System z)



- z/VM



- z/VSE



z/VSE V5.1

## z/VM Release Status



z/VM Level		GA	End of Service	End of Marketing	Minimum Process or Level	Security Level
Ver 6	Rel 3	3Q / 2013	tbd		z10	tba
	Rel 2	12 / 2011	4 / 2015	3Q / 2013	z10	-
	Rel 1	10 / 2009	4 / 2013	12 / 2011	z10	EAL 4+ <sup>[1]</sup> OSPP-LS
Ver 5	Rel 4	9 / 2008	12 / 2014 <sup>[2]</sup>	3 / 2012	z800, z900	-
	Rel 3	6 / 2007	9 / 2010	9 / 2010	z800, z900	EAL 4+ CAPP/LSP

<sup>[1]</sup> Verfügbar seit Feb, 2013

<sup>[2]</sup> oder später (Ankündigung 07.08.2012)

Marketed & Serviced

Serviced, but not Marketed

End of Service & Marketing

Erweiterte Supportverträge sind verfügbar.

## z/VM Version 5 Release 4



z/VM V5.4 kann nicht mehr bestellt werden, ist aber noch im Service

- unterstützt auch IBM zEnterprise zEC12

Und

- IBM System z9 oder älter



### End of Service (EoS)–Termin

- War 30.9. 2013 oder später, abhängig vom EoS-Termin der IBM System z9 EC/BC

wurde am 07.August 2012 verschoben auf

- **31.12. 2014** oder später, abhängig vom EoS-Termin der IBM System z9 EC/BC

## z/VM Version 6



z/VM V6 unterstützt Architectural Level Set (ASL) der IBM System z10 und läuft daher nur auf IBM System z10 und jünger

### z/VM V6.1

- End of Service: 30.04.2013, nicht mehr bestellbar seit GA von z/VM 6.2



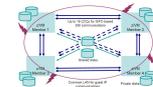
### z/VM V6.2

Haupterweiterung: Single System Image (SSI) + Live Guest Relocation(LGR)



→ **neues Installations- / Konfigurationskonzept**

- non-SSI z/VM System = **1 z/VM-System** = SSI- z/VM System mit 1 Member
- neue Begriffe und User, Änderungen im Platten-Layout, ...
- Gesharte Directory, Minidisks, Spool files, Virtual Switch MAC Adressen



- Mehrere "IBM Redbooks" zu SSI und LGR unter <http://w3.itso.ibm.com/>
- IBM Schulung: z/VM 6.2.0-Update Course – Kursnummer: ZOVME2DE

## z/VM 6.2-Update Schulung



z/VM 6.2 Update Kurs ist im Kundenkurskatalog buchbar und wird auch problemlos gefunden, wenn man z.B. den Suchbegriff „z/VM Update“ eingibt:

- **2. - 6. September 2013**
- **IBM Mainz**, Hechtsheimer Str. 2, Gebäude 20
- Anmeldung:  
<http://www-304.ibm.com/jct03001c/services/learning/ites.wss/de/de?pageType=page&c=a0003393>
- Preis: 3.100 EUR

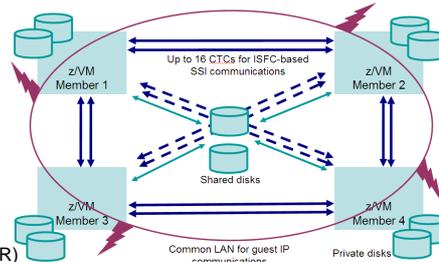


### z/VM 6.2.0-Update Course – Course Code ZOVME3DE

This course introduces you to install multiple z/VM Systems interconnected within a cluster which share some system resources. The class focuses on the required steps of implementing DirMaint defining a Linux server and installing service in a single z/VM System. You will participate in hands-on labs where you will do a live relocation of a Linux server in a Single-System Image Cluster

**Single System Image, Clustered Hypervisor, Live Guest Relocation**

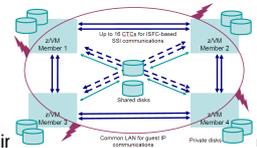
- Provided as an **optional priced feature**
- Connect up to four z/VM systems as members of a **Single System Image (SSI)** cluster
- Provides a set of **shared resources** for member systems and their hosted virtual machines
  - Directory, minidisks, spool files, virtual switch MAC addresses
- Cluster members can be run on the same or different z10, z196, or z114 servers
- **Simplifies systems management** of a multi-z/VM environment
  - Single user directory
  - Cluster management from any member
    - Apply maintenance to all members in the cluster from one location
    - Issue commands from one member to operate on another
  - Built-in cross-member capabilities
  - Resource coordination and protection of network and disks
- Dynamically move **Linux guests** from one z/VM member to another with **Live Guest Relocation (LGR)**
  - Reduce planned outages; enhance workload management
  - Non-disruptively move work to available system resources **and** non-disruptively move system resources to work
  - When combined with Capacity Upgrade on Demand, Capacity Backup on Demand, and Dynamic Memory Upgrade, you will get the best of both worlds

**What is special about an SSI / LGR Cluster ?**

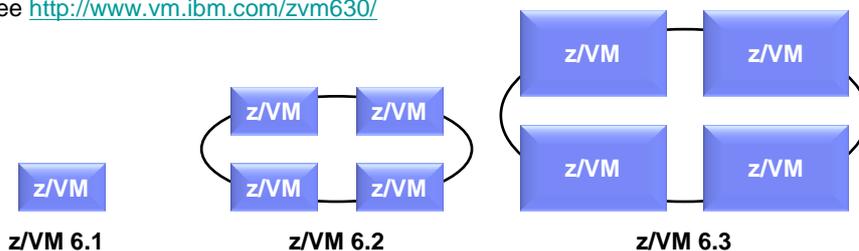
- SSI provides for a set of **shared resources** that can be used by both CP and virtual machines, with full awareness of such sharing by CP
  - Directory, minidisks, spool files, virtual switches, dedicated devices
- User can **login to any member** of the cluster
- Disconnected user can be **moved to any member** of the cluster while the user's virtual machine is running
- LGR is initiated by a **privileged command** in z/VM 6.2

**Restrictions (examples):**

- A guest is **not relocatable when ...**
  - It is anything other than Linux
  - It is using a resource that doesn't exist on the target system
  - It owns a resource that other users depend on and that would be irrelate
  - It is using a facility which is not relocatable (e.g., CFVM)
- **No long-distance connections**
- **3390 installation only**
  - System state disk must be ECKD, post-installation use of SCSI is OK
- **IBM Director** does not support SSI and LGR
- zEnterprise **Unified Resource Manager** does not support SSI and LGR



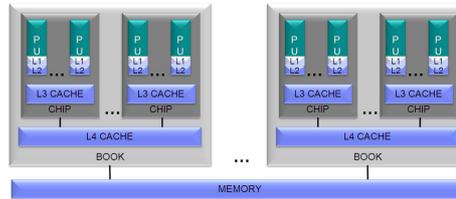
- Preview-Announcement: 05. Februar 2013
- Geplante Verfügbarkeit: 3. Quartal 2013
- **Hauptverbesserungen bei Skalierbarkeit und Performance**
  - Größerer Real Memory Support (256 GB → 1 TB)
  - Verbesserte Prozessor/Cache-Ausnutzung
- See <http://www.vm.ibm.com/zvm630/>



- **Increases the real memory limit from 256 GB to 1 TB**
  - Proportionately increases total virtual memory based on tolerable over-commitment levels and workload dependencies
- **Individual virtual machine memory limit remains unchanged at 1 TB**
- **Paging DASD utilization and requirements change**
  - Proactive writing of pages to DASD increases need to have properly configured paging subsystem
  - Removed the need to double the paging space on DASD
- **Expanded Storage continues to be supported with limit of 128 GB**
- **Page selection algorithms rewritten**
  - Reorder processing removed
  - Greater separation from the scheduler lists
  - Better handling of Linux guests that do not go truly idle
- **Improved effectiveness of the CP SET RESERVE command**
  - Pages protected better than previously
  - Support for reserving pages of NSS or DCSS space
  - Ability to limit the overall number of reserved pages for a system

- **Improves processor efficiency**
  - Better n-way curves: supported processor limit of 32 remains unchanged
  - Better use of processor cache to take advantage of cache-rich system design of more recent machines

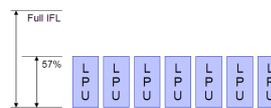
- **Two components:**
  - (1) **Dispatching Affinity:** dispatch virtual CPU near where its data may be in cache based on where the virtual CPU was last dispatched



- (2) **Vertical CPU Management:** cooperation with PR/SM to distribute physical processor resources to logical processors more efficiently for some configurations

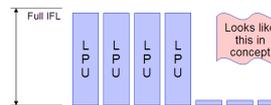
**Horizontal:**

- The logical processors are all created/treated equally.
- z/VM dispatches work evenly across the logical processors.



**Vertical:**

- The logical processors are skewed to where some get greater share of the weight.
- z/VM dispatches work accordingly to the heavier weighted workload.



Überblick

Aktuelles zu

- IBM zEnterprise System (System z)



- z/VM



- z/VSE



## z/VSE Support Status



VSE Version and Release	Marketed	Supported	End of Support
z/VSE V5.1	✓	✓	tbd
z/VSE V4.3	✗	✓	05/31/2014
z/VSE V4.2 incl CICS/VSE V2.3, DL/I V1.11	✗	✗	10/31/2012
z/VSE V4.1 <sup>2)</sup>	✗	✗	04/30/2011
z/VSE V3.1 <sup>1)</sup>	✗	✗	07/31/2009
VSE/ESA V2.7	✗	✗	02/28/2007

*Service Extension Contracts available on request*

<sup>1)</sup> z/VSE V3 is 31-bit mode only. It does not implement z/Architecture, and specifically does not implement 64-bit mode capabilities. z/VSE is designed to exploit select features of IBM System z10, System z9, and zSeries hardware.

<sup>2)</sup> z/VSE V4 is designed to exploit 64-bit real memory addressing, but will not support 64-bit virtual memory addressing

## z/VSE Support for IBM Mainframe Servers



IBM Servers	z/VSE V5.1	z/VSE V4.3	z/VSE V4.2 (out of service)	z/VSE V4.1 (out of service)
IBM zEnterprise EC12	✓	✓	✓	✗
IBM zEnterprise z196 & z114	✓	✓	✓	✓
IBM System z10 EC & z10 BC	✓	✓	✓	✓
IBM System z9 EC & z9 BC	✓	✓	✓	✓
IBM eServer zSeries 990 & 890	✗	✓	✓	✓
IBM eServer zSeries 900 & 800	✗	✓	✓	✓

On June 14, 2011, IBM announced withdrawal of service for **Multiprise 3000 (7030-H30, -H50, -H70)**, to become effective December 31, 2012.

**Please note:**

- z/VM V6 requires System z10 technology (or higher)
- SUSE SLES 11 requires System z9 technology (or higher)
- Red Hat RHEL 6 requires System z9 technology (or higher)

## z/VSE Entwicklung bis 2Q/2012



### PIE-Strategie:

**Protect**  
**Integrate**  
**Extend**

Hardware Support

More Capacity

Quality

z/OS Affinity

Interoperability

**z/VSE 5.1.1** 15.06. 2012

CICS Explorer, LFP in LPAR,  
Database connector

**z/VSE V5.1** Nov. 25, 2011

- zEnterprise exploitation
- ALS to System z9 (and higher)
- 64-bit virtual addressing
- z/VSE z/VM IP Assist (VIA)

**z/VSE V4.3** Nov. 26, 2010

- Virtual storage (24-bit) constraint relief
- 4-digit device addresses
- Security/crypto/networking enhancements
- LFP in z/VM mode LPAR

**z/VSE V4.2** Oct. 17, 2008 (EoS: 10/2012)

- More tasks, LDAP Client,
- IPv6/VSE

**z/VSE V4.1** March 16, 2007 (EoS: 04/2011)

- zArchitecture only, 64 bit real addressing,
- MWLC – full and sub-capacity pricing

**z/VSE V3.1** March 4, 2005

- selected zSeries features, FCP/SCSI
- 31 bit mode only

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## z/VSE Ankündigung werden erfüllt



Hardware Support  
More Capacity  
Quality  
z/OS Affinity  
Interoperability  
**Protect Integrate Extend**

**z/VSE V4.3 - 4Q2010**

- > z196 toleration / exploitation
- > 4-digit device addresses
- > 24-bit virtual storage constraint relief
- > Linux Fast Path (with z/VM)
- > IPv6/VSE as optional product

+ SoD: 64-bit virtual support

**z/VSE V5.1 - 4Q2011**

- > z196 / z114 exploitation
- > ALS to System z9 (and higher)
- > 64-bit virtual memory objects
- > z/VSE z/VM IP Assist (VIA)
- > No CICS/VSE support

+ SoD: CICS Explorer, LFP in LPAR

**z/VSE V5.1+ - 2Q2012**

- > CICS Explorer Monitoring
- > Universal database connector
- > Linux Fast Path in LPAR

z/VSE 5.1+ and ++ denote enhancements made available via PTF

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## [z/VSE V5.1++ Ankündigung vom 02.04.2013 \(1\)](#)



Verfügbar ab 14.06.2013: (oder früher)

- Per PTF „on top“ von z/VSE 5.1
- Einzelner Hardware Support ist auch mit z/VSE V4.3 verfügbar



### **Funktionserweiterungen (1):**

- **Support innovative zEnterprise EC12 technology**
  - Configurable Crypto Express4S
  - OSA-Express4S 1000BASE-T
- **Support enhanced IBM System Storage options**
  - TS1140 tape drive (with encryption capabilities)
  - TS7700 Virtualization Engine Release 3.0 (includes disk-based encryption) \*)
  - DS8870 (for use with both, ECKD and FCP-attached SCSI disks) \*)
  - Storwize V7000 Release 6.4 (for use with FCP-attached SCSI disks) \*)

\*) bereits verfügbar mit aktuellem RSL (Stand 27.02.2013)

## [z/VSE V5.1++ Ankündigung vom 02.04.2013 \(2\)](#)



### **Funktionserweiterungen (2):**

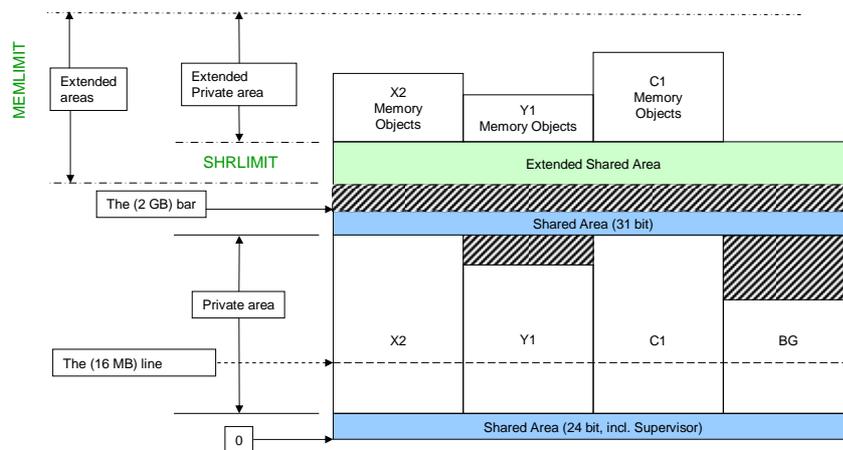
- **64-bit Input / Output processing for applications \*)**
  - Enhances 64-bit virtual support by allowing to use 64-bit virtual storage also for I/O buffers
  - Benefits from increased processor storage of latest zEnterprise servers
- **Extend z/VSE connectivity and networking options in heterogeneous environments**
  - z/VSE database connector connection pooling – performance improvement
  - Configurable HiperSockets buffers – for improved throughput to Linux on System z
  - IPv6/VSE: Layer-2 support for IPv4 links in addition to IPv6 links – more flexibility in mixed z/VSE, z/VM, Linux on System z configurations \*)
- **Provide IPv6/VSE security enhancements \*)**
  - Secure Sockets Layer (SSL) support – secure transmission of data to and from remote systems
  - Exploits hardware-assisted encryption with System z cryptographic adapters and CPACF

\*) bereits verfügbar mit aktuellem RSL (Stand 27.02.2013)



- Support 64 bit virtual addressing
  - 64 bit area can be used for **data only**
    - No instruction execution above the bar
  - **z/OS affinity:**  
 APIs (IARV64 services) - to manage memory objects – compatible with z/OS
    - Private memory objects for use in one address space
    - Shared memory objects to be shared among multiple address spaces
  - Maximum VSIZE still limited to 90 GB
  - 64-bit general purpose registers = 8 byte registers
    - High order half = 0-31 bits of register
    - Low order half = 32-63 bits of register
- Advantages:
- Eases the access of large amounts of data  
 E.g. instead of using and managing data spaces
  - Reduces complexity of programs  
 Data contained in primary address space
  - Chosen design has no dependencies to existing APIs, minor impact on existing system code

Address Space Layout



- Memory Objects
  - Begins on a 1 MB boundary and is multiple of 1 MB in size
- SYSDEF statement to define the limits for memory objects
  - Before IARV64 macro can be used
  - SYSDEF MEMOBJ, MEMLIMIT=, SHRLIMIT=, LFAREA=, LF64ONLY=
    - MEMLIMIT – maximum virtual storage available for memory objects
    - SHRLIMIT – maximum virtual storage available for Shared Memory Objects
    - LFAREA – maximum real storage to fix Private Memory Objects
    - LF64ONLY – NO|YES – memory objects are fixed in 64-bit frames only
  - ```
sysdef memobj, memlimit=1g, shrlimit=500m, lfarea=10m
AR 0015 1I40I  READY
```
- QUERY MEMOBJ displays
  - Effective settings of MEMLIMIT, SHRLIMIT; LFAREA, LF64ONLY
  - Summary information: virtual storage consumption of private / shared memory objects
- More information:
  - IBM z/VSE Extended Addressability, Version 5 Release 1
  - IBM z/VSE System Macro Reference, Version 5 Release 1

### Extend z/VSE's 64 bit virtual support to 64 bit virtual I/O

- GA: 12/19/2012 via PTF UD53915/UD53917/UD53916 (APAR DY47619)
- I/O requests for Private Memory Objects only
  - No I/O support for Shared Memory Objects
- EXCP only
  - LIOCS not supported
- DASD (ECKD) only
  - No 64-bit support for Tape, FBA/SCSI
- Advantages:
  - Eases allocation of large I/O buffers
    - e.g. instead of using and managing data spaces
  - Performance improvement
    - Large I/O buffers
    - Less complexity of programs
  - Chosen design has no dependencies to existing APIs
    - Minor impact on existing system code
- Details, s. GSE-Vortrag „VS05\_zVSE\_Supervisor\_Highlights“ auf der VSE-Homepage: <http://www-03.ibm.com/systems/z/os/zvse/documentation/conferences.html>

### IPv6/VSE: SSL Support

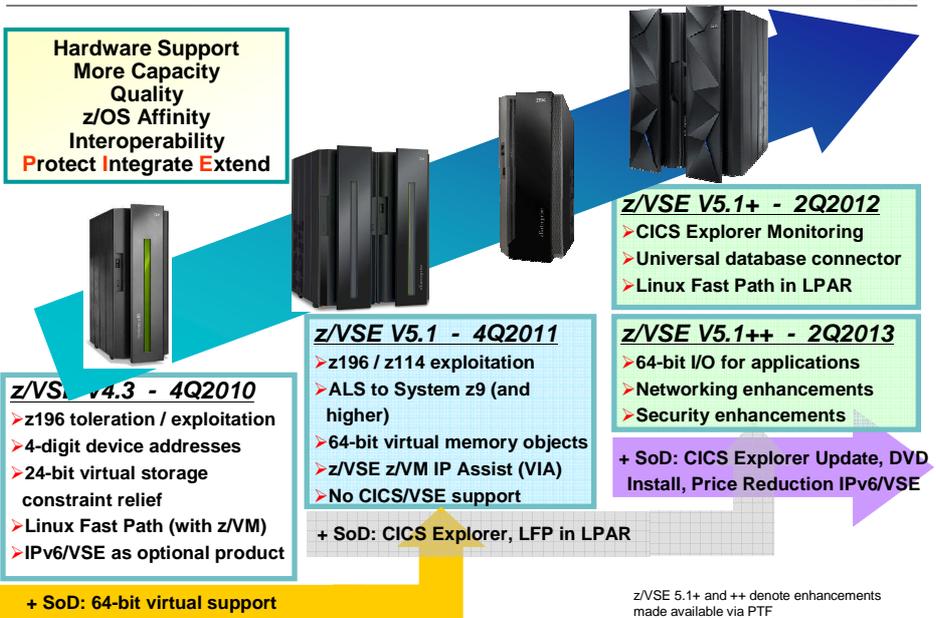
Verfügbar mit PTF UK83637 (APAR PM77065)

Unterstützt wird

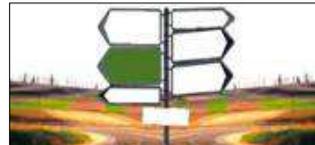
- HTTPS (HTTP over SSL)
- FTPS (FTP over SSL)
- SMTPS (SMTP over SSL),
- TN3270E over SSL

Und ein

- SSL Proxy Server im z/VSE (transparent für die Anwendungen)
  - Erlaubt Nicht-SSL-Server Anwendungen im z/VSE Verbindung von einem SSL-basierten Client-Anwendung zu akzeptieren
  - Erlaubt Nicht-SSL Client Anwendungen im z/VSE zu SSL-basierten Remote Server Anwendungen aufzubauen
  - unterstützt HW-Encryption (System z cryptographic adapters and CPACF), falls aktiviert



- IBM intends to add functionality that **allows initial installation of z/VSE without requiring a physical tape.**
  - Clients who use a tape for initial installation only, may no longer be forced to include a tape in the z/VSE configuration.
  - With this ease of use function IBM will fulfill client requirements.
- IBM intends in the **future to enhance IBM CICS Explorer** for IBM CICS Transaction Server for VSE/ESA to provide updates to CICS resources.
- It is planned to **reduce the AEWLC and MWLC list price of IPv6/VSE V1.1.**



Note: IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

**z/VSE 5.1.1 bietet viele Verbesserungen, u. a.**

- mehr Speicherplatz
- Neue Verbindungsmöglichkeiten nicht nur zu Linux on System z



- Läuft auf z/VM V5 / V6 und auf IBM System z9 und höher

**Positive Resonanz bei den Kunden!**



**Es läuft stabil, besonders mit**

z/VSE V5.1.1 – Basisbändern (Service-Stand: 16.04.2012)  
+  
dem aktuellen Recommended Service Level (RSL)  
enthält alle PTFs bis zum 27.02.2013

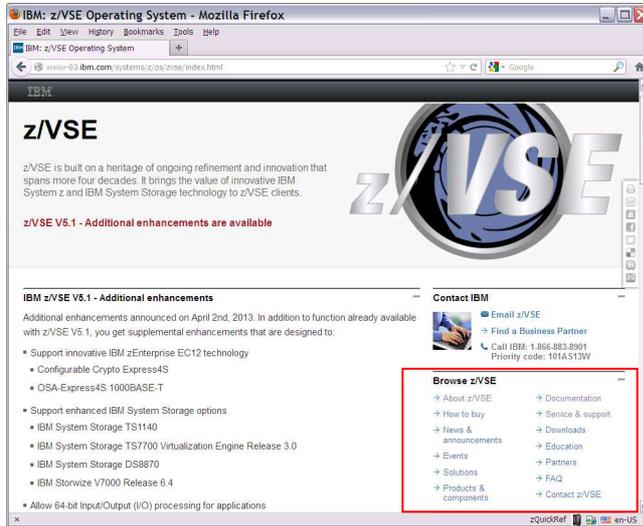
- Ist einfach über IBM Shopz zu bestellen
  
- Gegenüber z/VSE V4 hat sich die Produktnummer der *z/VSE Central Functions* geändert und muss **neu lizenziert** werden
  - *z/VSE Central Functions (Programm-Nr: 5686CF9)* bei z/VSE V5.1
  - *z/VSE Central Functions (Programm-Nr: 5686CF8)* bei z/VSE V4.x
  
- Gleiche Lizenzgebühr wie bei z/VSE V4.
  - Um die *z/VSE Central Functions* nicht zusätzlich für das bisherige z/VSE V4 bezahlen zu müssen, sollten Sie für die Migrationszeit (ohne Begründung 6 Monate lang) **Single Version Charge (SVC)** nutzen → **explizit angeben!**
  
  - **SVC** wird bei den SubCapacity-Messungen berücksichtigt!

### Testen Sie **nur** mit einem möglichst aktuellen Service-Stand!

- Der nächste RSL mit Service-Stand **von Anfang April** ist in Arbeit.
- Evtl. PSP-Bucket bestellen!
  - Enthält tagesaktuell besonders wichtige PTFs (HIPER-PTFs)
  
- aktueller Service-Stand der **Vendorprodukte** ist wichtig !
  
- Testen Sie sorgfältig Ihre Anwendungen  
besonders, wenn Sie z/VSE 4.3 überspringen
  
- Altanwendungen nicht vergessen!
  
- **Neuer Refresh z/VSE V5.1.2** ist für **14.06.2013** geplant
  - Aktueller Service Stand (Anfang April)
  - z/VSE V5.1++ Funktionserweiterungen



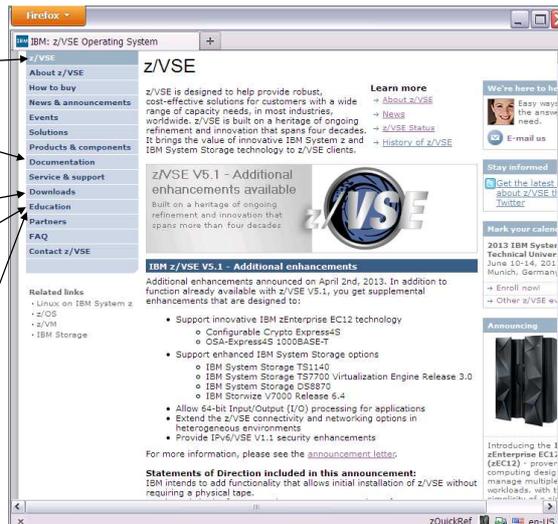
Die VSE-Homepage erhält nach und nach ein neues Gesicht



Dieser Navigationsblock war bisher der blauer Block oben links

**Aktuelle Informationen**

- Neuigkeiten
- z/VSE Dokumentation:
  - z/VSE.5.1 Release Guide, ...
  - Artikel / GSE-Vorträge
- z/VSE Konnektoren /Tools
  - z/VSE Quick Reference App
- Live Virtual Classes
  - am 04.06.2013 Ingo Franzki
  - z/VSE Security Overview and Update
  - Replays, u.a.
  - Migration Considerations
- z/VSE-Schulung von Lattwein



Nächste z/VM & z/VSE-GSE-Tagung ist vom 30.09. - 02.10.2013 in Hamburg

## z/VSE Live Virtual Classes (Webcasts)



- **June 2013 (4.06.2013, Ingo Franzki)**
  - z/VSE Security Overview and Update
- **April 2013**
  - Important Update on z/VSE Enhancements
- **March 2013**
  - z/VSE Release Migration Considerations - Part 2
- **February 2013**
  - z/VSE Release Migration Considerations - Part 1
- **December 2012**
  - System z Hardware Exploitation in z/VSE
- **October 2012**
  - VSE/POWER – all the News since z/VSE 4.2
- **September 2012**
  - Securing Data Transfers using IPv6/VSE
- **July 2012**
  - The New z/VSE Database Connector (DBCLI)

**Replays available!**  
**Dates and replays @**  
<http://www.ibm.com/zvse/education/>



## z/VSE Quick Reference App for Android – Available as Beta now!



<http://public.dhe.ibm.com/eserver/zseries/zos/vse/download/zVSEQuickReferenceBeta.apk>

| z/VSE Quick Reference                                                                                                                                                                                                                                                                                                                                                                                                | z/VSE News                                                                                                            | z/VSE Education                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| z/VSE is an Operating System running on IBM System z. It is designed to help clients protect their investments into VSE applications and data. It addresses requirements for growing z/VSE workloads and consolidation of z/VSE systems, exploiting innovative IBM zEnterprise 196, 114 and IBM System Storage technology. z/VSE focuses on scalability, security, and hybrid solutions including Linux on System z. | 2013/4/2<br>Announcement - IBM z/VSE V5.1 - Additional enhancements available                                         | Important Update on z/VSE Enhancements<br><a href="#">Listen to the playback of this session</a>                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                      | 2013/2/27<br>z/VSE 5.1.1 RSL updated to the Feb 21, 2013 level and z/VSE 4.3.1 RSL updated to the Feb 27, 2013 level. | z/VSE Release Migration Considerations Part 2 (March 12, 2013)<br><a href="#">Listen to the playback of this session</a>    |
|                                                                                                                                                                                                                                                                                                                                                                                                                      | 2013/2/5<br>Effective May 31, 2014, z/VSE V4.3 will be withdrawn from service.                                        | z/VSE Release Migration Considerations Part 1 (February 19, 2013)<br><a href="#">Listen to the playback of this session</a> |
|                                                                                                                                                                                                                                                                                                                                                                                                                      | 2012/11/1<br>z/VSE V4.2 end of service                                                                                | System z Hardware Exploitation in z/VSE (December 11, 2012)<br><a href="#">Listen to the playback of this session</a>       |
| <b>What's new</b>                                                                                                                                                                                                                                                                                                                                                                                                    | 2012/8/28<br>Announcing the IBM zEnterprise EC12 (zEC12)                                                              | VSE/POWER - all the news since z/VSE V4.2 (October 30, 2012)<br><a href="#">Listen to the playback of this session</a>      |
| <b>Events</b>                                                                                                                                                                                                                                                                                                                                                                                                        | 2012/6/15<br>z/VSE V5.1.1 is now available                                                                            | Securing Data Transfers using IPv6/VSE (September 12, 2012)<br><a href="#">Listen to the playback of this session</a>       |
| <b>Education</b>                                                                                                                                                                                                                                                                                                                                                                                                     | 2012/4/3<br>Announcement - IBM z/VSE V5.1 - Additional enhancements available                                         | The New z/VSE Database Connector (DBCLI) (July 17, 2012)<br><a href="#">Listen to the playback of this session</a>          |
| <b>Documentation</b>                                                                                                                                                                                                                                                                                                                                                                                                 | 2011/11/25<br>z/VSE V5.1 is now available                                                                             | IPv6 in z/VSE (May 22, 2012)<br><a href="#">Listen to the playback of this session</a>                                      |
| <b>Communities</b>                                                                                                                                                                                                                                                                                                                                                                                                   | 2011/10/12<br>Announcement: IBM z/VSE V5.1 - 64-bit virtual for future workloads                                      | Monitoring Principles & z/VSE Monitoring Options (March 22, 2012)                                                           |

**Haben Sie noch Fragen ?**



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**Danke für Ihre Aufmerksamkeit !**